WHAT IS CLAIMED IS:

1. An apparatus for a communications network, the apparatus comprising:

at least one interface circuit that reads frame data received from the communications network and writes frame data to be transmitted over the communications network, the frame data including a plurality of transport overhead fields; and

signature logic coupled to the at least one interface circuit, wherein the signature logic identifies signature data and writes the signature data into at least one of a plurality of transport overhead fields in an outgoing frame.

2. The apparatus of claim 1 further comprising:

reflector logic coupled to the at least one interface circuit, wherein the reflector logic copies data from at least one of the received transport overhead fields, the copied data being placed into a transport overhead field in the outgoing frame, the copied data including the received signature data.

3. The apparatus of claim 1 wherein the identifying signature data includes data identifying the interface as one of a multiplex section protection (MSP) working circuit, a MSP protect circuit, and a non-MSP circuit.

4. The apparatus of claim 1 wherein the identifying signature data includes data identifying the interface as one of an automatic protection switching (APS) working circuit, an APS protect circuit, and a non-APS circuit.

5. The apparatus of claim 2 wherein the at least one interface circuit compares the copied data to earlier received frame data from the communications network to determine whether the copied data matches signature data identified in the earlier received frame data, the determination of a mismatch identifying a transition by a multiplexer.

6. The apparatus of claim 5 wherein the router transition is between a plurality of routers at a remote location.

7. The apparatus of claim 5 wherein the router transition is one of an APS switch and an MSP switch.

8. The apparatus of claim 2 wherein the at least one interface circuit compares the copied data to later received frame data from the communications network to determine whether to update at least one routing table.

9. The apparatus of claim 2 further comprising:

another plurality of interface circuits disposed in at least one router, the router coupled via the communications network to the at least one interface circuit wherein the router reads the copied data including the signature data identifying one of the another plurality of interface circuits as an active interface, and wherein the router uses the copied data to configure a communications relationship.

10. The apparatus of claim 9 wherein the at least one of the another plurality of interface circuits is associated with a protect interface, the protect interface being an active interface when transmission of data is disrupted to a working interface among the another plurality of interface circuits.

11. The apparatus of claim 9 wherein the at least one of the another plurality of interface circuits includes a protect interface router and a working interface, the protect interface functioning as a backup interface, the working interface functioning as a primary interface, wherein at least one router housing the protect interface and the working interface uses the copied data to determine configuration compatibility between the protect interface and the working interface and to determine configuration compatibility among a plurality of tributary interfaces.

12. The apparatus of claim 9 wherein the router uses the copied data to determine configuration compatibility among the another plurality of interface circuits and the at least one interface circuit.

13. The apparatus of claim 1 wherein the transport overhead field is a path level overhead field.

14. The apparatus of claim 13 wherein the path level overhead field is a byte of a multi-byte path trace message conveyed by a path trace byte.

15. The apparatus of claim 14 wherein the path trace byte is represented by a Synchronous Optical NETwork (SONET) path trace byte of a SONET OC-3c frame, according to a STS-3c standard for SONET, the path trace byte being designated by J1.

16. The apparatus of claim 1 wherein the communications network includes a plurality of add-drop multiplexers, the plurality of add-drop multiplexers receiving and transmitting the copied data in one of a plurality of transport overhead fields while maintaining the copied data.

17. The apparatus of claim 1 wherein the communications network is a fiber optic network.

18. The apparatus of claim 1 wherein the communications network is one of a Synchronous Digital Hierarchy (SDH) and a Synchronous Optical NETwork (SONET).

19. The apparatus of claim 1 wherein the signature logic is a program product and wherein the program product comprises signal bearing media bearing means for identifying the signature data and writing the signature data into at least one of the plurality of transport overhead fields in an outgoing frame.

20. The apparatus of claim 19 wherein the signal bearing media further comprises recordable media.

21. The apparatus of claim 19 wherein the signal bearing media further comprises transmission media.

22. The apparatus of claim 1 wherein the reflector logic is a program product and wherein the program product comprises signal bearing media bearing means for copying data from received transport overhead fields and means for placing the copied data into a transport overhead field in an outgoing frame.

23. The apparatus of claim 22 wherein the signal bearing media further comprises recordable media.

24. The apparatus of claim 22 wherein the signal bearing media further comprises transmission media.

25. A method for a communications network including at least one local router and at least one remote router, the method comprising:

transmitting data in a transport overhead field to at least one remote router, the data identifying an active interface in the local router;

receiving the data at the local router reflected from the remote router; and

configuring a communications relationship using the data.

26. The method of claim 25 further comprising:

avoiding alteration of the data by one or more add-drop multiplexers.

27. The method of claim 25 further comprising:

in the remote router, using the data to determine which among a plurality of local interface circuits is the active interface in the local router.

28. The method of claim 25 further comprising:

in the remote router, using the data to determine whether there has been a transition among a plurality of local interface circuits, the transition changing the identity of the active interface in the local router.

29. The method of claim 25 wherein the transport overhead field is a path level overhead field of a frame, the path level overhead field being received and transmitted by a plurality of intermediate add-drop multiplexers, the plurality of intermediate add-drop multiplexers maintaining the transport overhead field.

30. The method of claim 29 wherein the path level overhead field is a byte of a multi-byte path trace message conveyed by a path trace byte.

31. The method of 30 wherein the path trace byte is represented by a Synchronous Optical NETwork (SONET) path trace byte of a SONET OC-3c frame, according to a STS-3c standard for SONET, the path trace byte being designated by J1.

32. The method of claim 25 further comprising:

comparing the data to later received frame data from the communications network to determine whether to update at least one routing table.

33. The method of claim 25 further comprising:

using the data to determine configuration compatibility among a plurality of interface circuits.

34. The method of claim 25 wherein the communications network is a fiber optic network.

35. The method of claim 25 wherein the communications network is one of a Synchronous Digital Hierarchy (SDH) and a Synchronous Optical NETwork (SONET).

36. A system for a communications network, the system comprising:

means for transmitting data in a transport overhead field to at least one remote router, the data identifying an active interface in the local router;

means for receiving the data at the local router reflected from the remote router; and

means for configuring a communications relationship using the data.

37. The system of claim 36 further comprising:

means for avoiding alteration of the data by one or more add-drop multiplexers.

38. The system of claim 36 further comprising:

means, in the remote router, for using the data to determine which, among a plurality of local interfaces, is an active interface.

39. The system of claim 36 further comprising:

means for comparing the data to earlier received data from the communications network to determine whether to update at least one routing table.

40. The system of claim 36, wherein the system is a program product and wherein the program product further comprises:

signal bearing media bearing the means for transmitting data in a transport overhead field to at least one remote router, the data identifying an active interface in the local router, the means for receiving the data at the local router reflected from the remote router, and the means for configuring a communications relationship using the data.

41. The system of claim 40, wherein the signal bearing media further comprises recordable media.

42. The system of claim 40, wherein the signal bearing media further comprises transmission media.